

IN THE CLAIMS:

1-31(Cancelled)

32. (new) A method to generate a print image on a carrier material, comprising:

5 generating a hydrophilic layer with a molecular layer thickness at a surface of a print carrier usable for printing, a surfactant layer being applied on the surface of the print carrier to generate the hydrophilic layer;

10 in a structuring process, generating hydrophilic regions and hydrophobic regions corresponding to a structure of the print image to be printed;

at the surface of the print carrier, applying a fountain solution layer whereby the fountain solution layer forms only on the hydrophilic regions such that ink-attracting regions and ink-repelling regions are created corresponding to the print image structure;

15 applying on the surface ink that adheres to the ink-attracting regions and that is not absorbed by the ink-repelling regions;

transferring the applied ink onto the carrier material; and

before a new structuring process, cleaning the surface of the print carrier and regenerating a hydrophilic layer.

20 33. (new) A method according to claim 32 wherein the hydrophilic layer on the surface of the print carrier has a thickness of less than 100 nm.

34. (new) A method according to claim 32 wherein the application of the hydrophilic layer occurs via at least one of rolling, scraping, and spraying.

25 35. (new) A method according to claim 32 wherein the cleaning and the regeneration of the hydrophilic layer occurs in a single process step.

36. (new) A method according to claim 35 wherein at least one of hot water and water vapor is used for the cleaning.

37. (new) A method according to claim 32 wherein radiation is used for the structuring.

5 38. (new) A method according to claim 37 wherein the radiation of at least one of a laser system, a laser, laser diodes, LEDs and a laser diode array is used.

39. (new) A method according to claim 32 wherein an ink separation occurs before the transfer of the ink onto the carrier material.

10 40. (new) A method according to claim 32 wherein the surface of the print carrier is one of a generated cylinder surface and a continuous band.

41. (new) A device to generate a print image on a carrier material, comprising:

15 a pre-treatment station via which a hydrophilic layer with a molecular layer thickness is generated at a surface of a print carrier usable for printing, a surfactant layer being applied on the surface of the print carrier to generate said hydrophilic layer;

20 an image generation station which, in a structuring process, generates hydrophilic regions and hydrophobic regions corresponding to a structure of the print image to be printed;

a fountain solution application station which applies a fountain solution layer on the surface of the print carrier whereby the fountain solution layer forms only on the hydrophilic regions such that ink-attracting regions and ink-repelling regions are created corresponding to the print image structure;

25 an inking station which applies ink that adheres to the ink-attracting regions and which is not absorbed by the ink-repelling regions;

a transfer station at which the applied ink is transferred onto the carrier material; and

a cleaning station which cleans the surface of the print carrier before a new structure process.

5 42. (new) A device according to claim 41 wherein the hydrophilic layer on the surface of the print carrier has a thickness of less than 100 nm.

43. (new) A device according to claim 41 wherein the cleaning and a regeneration of the hydrophilic layer occurs in a single process.

10 44. (new) A device according to claim 41 wherein radiation is used for the structuring.

45. (new) A device according to claim 44 wherein the radiation of at least one of a laser system, a laser, laser diodes LEDs and a laser diode array is used.

15 46. (new) A device according to claim 41 wherein an ink separation occurs before the transfer of the ink onto the carrier material.

47. (new) A device according to claim 41 wherein the surface of the print carrier is one of a generated cylinder surface and a continuous band.

48. (new) A method to generate a print image on a carrier material, comprising the steps of:

20 providing a surface of the print carrier with an SiO₂ layer and a hydrophilic layer with a molecular layer thickness and comprising SiOH molecules via hot water vapor;

25 in a structuring process, generating hydrophilic regions and hydrophobic regions corresponding to a structure of the print image to be printed;

at the surface of the print carrier, applying a fountain solution layer whereby the fountain solution layer forms only on the hydrophilic regions such that ink-attracting regions and ink-repelling regions are created corresponding to the structuring;

5 applying on the surface ink that adheres to the ink-attracting regions and that is not absorbed by the ink-repelling regions;

transferring the applied ink onto the carrier material; and

before a new structuring process, cleaning the surface of the print carrier and regenerating a hydrophilic layer.

10 49. (new) A method according to claim 48 wherein the hydrophilic layer on the surface of the print carrier has a thickness of less than 100 nm.

50. (new) A method according to claim 48 wherein the cleaning and the regeneration of the hydrophilic layer occurs in a single process step.

15 51. (new) A method according to claim 50 wherein at least one of hot water and water vapor is used for the cleaning.

52. (new) A method according to claim 48 wherein radiation is used for the structuring.

20 53. (new) A method according to claim 52 wherein the radiation of at least one of a laser system, a laser, laser diodes, LEDs and a laser diode array is used.

54. (new) A method according to claim 48 wherein an ink separation occurs before the transfer of the ink onto the carrier material.

55. (new) A method according to claim 48 wherein the surface of the print carrier is one of a generated cylinder surface and a continuous band.

25 56. (new) A device to generate a print image on a carrier material, comprising:

a pre-treatment station with which an SiO₂ layer and a hydrophilic layer with a molecular layer thickness is generated on a surface of a print carrier usable for printing;

5 an image generation station which, in a structuring process, generates hydrophilic regions and hydrophobic regions corresponding to a structure of the print image to be printed;

10 an application station which applies a fountain solution layer on the surface of the print carrier whereby the fountain solution layer forms only on the hydrophilic regions such that ink-attracting regions and ink-repelling regions are created corresponding to the print image structure;

an inking station which applies on the surface ink that adheres to the ink-attracting regions and which is not absorbed by the ink-repelling regions;

a transfer station at which the applied ink is transferred onto the carrier material; and

15 a cleaning station which cleans the surface of the print carrier before a new structure process.

57. (new) A device according to claim 56 wherein the hydrophilic layer on the surface of the print carrier has a thickness of less than 100 nm.

20 58. (new) A device according to claim 56 wherein the cleaning and the a regeneration of the hydrophilic layer occurs in a single process step.

59. (new) A device according to claim 56 wherein radiation is used for the structuring.

60. (new) A device according to claim 59 wherein the radiation of at least one of a laser system, a laser, laser diodes, LEDs and a laser diode array is used.

61. (new) A device according to claim 56 wherein an ink separation occurs before the transfer of the ink onto the carrier material.

62. (new) A device according to claim 56 wherein the surface of the print carrier is one of a generated cylinder surface and a continuous band.

5 63. (new) A method to generate a print image on a carrier material, comprising:

generating a hydrophilic layer at a surface of a print carrier usable for printing, a surfactant layer being applied on the surface of the print carrier to generate the hydrophilic layer;

10 in a structuring process, generating hydrophilic regions and hydrophobic regions corresponding to a structure of the print image to be printed;

15 at the surface of the print carrier, applying a fountain solution layer whereby the fountain solution layer forms on the hydrophilic regions such that ink-attracting regions and ink-repelling regions are created corresponding to the print image structure;

applying on the surface ink that adheres to the ink-attracting regions and that is not substantially absorbed by the ink-repelling regions;

transferring the applied ink onto the carrier material; and

20 before a new structuring process, cleaning the surface of the print carrier.

64. (new) A device to generate a print image on a carrier material, comprising:

25 a pre-treatment station via which a hydrophilic layer is generated at a surface of a print carrier usable for printing, a surfactant layer being applied on the surface of the print carrier to generate said hydrophilic layer;

an image generation station which, in a structuring process, generates hydrophilic regions and hydrophobic regions corresponding to a structure of the print image to be printed;

5 a fountain solution application station which applies a fountain solution layer on the surface of the print carrier whereby the fountain solution layer forms on the hydrophilic regions such that ink-attracting regions and ink-repelling regions are created corresponding to the print image structure;

an inking station which applies ink that adheres to the ink-attracting regions and which is not absorbed by the ink-repelling regions;

10 a transfer station at which the applied ink is transferred onto the carrier material; and

a cleaning station which cleans the surface of the print carrier.

65. (new) A method to generate a print image on a carrier material, comprising the steps of:

15 providing a surface of the print carrier with an SiO_2 layer and a hydrophilic layer comprising SiOH molecules via hot water vapor;

in a structuring process, generating hydrophilic regions and hydrophobic regions corresponding to a structure of the print image to be printed;

20 at the surface of the print carrier, applying a fountain solution layer whereby the fountain solution layer forms only on the hydrophilic regions such that ink-attracting regions and ink-repelling regions are created corresponding to the structuring;

25 applying on the surface ink that adheres to the ink-attracting regions and that is not absorbed by the ink-repelling regions;

transferring the applied ink onto the carrier material; and

before a new structuring process, cleaning the surface of the print carrier.

66. (new) A device to generate a print image on a carrier material, comprising:

5 a pre-treatment station with which an SiO₂ layer and a hydrophilic layer is generated via a hot water vapor on a surface of a print carrier usable for printing;

10 an image generation station which, in a structuring process, generates hydrophilic regions and hydrophobic regions corresponding to a structure of the print image to be printed;

an application station which applies a fountain solution layer on the surface of the print carrier whereby the fountain solution layer forms on the hydrophilic regions such that ink-attracting regions and ink-repelling regions are created corresponding to the print image structure;

15 an inking station which applies on the surface ink that adheres to the ink-attracting regions and which is not absorbed by the ink-repelling regions;

a transfer station at which the applied ink is transferred onto the carrier material; and

a cleaning station which cleans the surface of the print carrier.